

**ANNUAL ADMINISTRATIVE REPORT (FY 2002) AND
WORK PLAN (FY 2003) FOR INVENTORIES AND VITAL SIGNS
MONITORING**

FY 2002-FY 2003

NATIONAL CAPITAL NETWORK

Includes: Antietam National Battlefield, Catocin Mountain Park, Chesapeake and Ohio Canal National Historical Park, George Washington Memorial Parkway, Harpers Ferry National Historical Park, Manassas National Battlefield Park, Monocacy National Battlefield, National Capital Parks East, Prince William Forest Park, Rock Creek Park, and Wolf Trap Farm Park. Monitoring support is also provided to a local section of the Appalachian National Scenic Trail (north of Shenandoah National Park to Pennsylvania border).

National Capital Network Approval Signatures

John Howard, Superintendent, Antietam National Battlefield Chair, Network Board of Directors	Date
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Ellen van Snik Gray, Regional Inventory and Monitoring Coordinator, National Capital Region	Date
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Marcus Koenen, Monitoring Coordinator National Capital Network	Date
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Jim Sherald, Chief of Natural Resources and Science National Capital Region	Date
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I. Overview and Objectives

The National Capital Network (NCN) includes eleven national parks with significant natural resources in the District of Columbia, Virginia, Maryland, and West Virginia. In FY02, biological inventories of amphibians, reptiles, small mammals, and birds continued. New inventories for fish and vascular plants were initiated. Priority monitoring activities for FY02 included working with the Science Advisory Committee to develop conceptual models, holding a vital signs monitoring workshop, and preparing the Phase I monitoring report (Chapter II: NCN overview and Chapter III: conceptual models). In FY02, the Water Resources staff conducted interviews with park staff to summarize existing water quality data and determine high priority water quality monitoring issues to park management. The Maryland Department of Natural Resources Maryland Biological Stream Survey (MBSS) was selected from existing monitoring programs as the basis for NCN's Water Quality Monitoring Plan. The MBSS will be modified to meet the needs of the parks and to encompass Water Resources Division (WRD) core water parameters.

In FY03, biological inventories of amphibians, reptiles, vascular plants, fish, and birds will continue. A new inventory for bats will be initiated. Monitoring staff will continue to work with the Science Advisory Committee to prioritize and choose vital signs, and prepare a monitoring workshop report and Phase II monitoring report (Chapter IV: vital signs). The Water Resources staff will submit a draft of the Phase II monitoring plan and complete Phase III (Chapters V-XIII: protocols, data management, data analysis and reporting, administrative implementation, schedule, budget). Additional vital signs for the Water Quality Monitoring Plan will be determined based on consensus by the Science Advisory Committee, water resource workgroup.

Objectives for Biological Inventories

1. Compile and evaluate existing data for each park into NPS databases.
2. Complete the documentation of 90% of vertebrate and vascular plant species in the parks through targeted field investigations.

Objectives for Vital Signs Monitoring

3. Hire key personnel to implement the network monitoring program.
4. Establish Board of Directors and Science Advisory Committee.
5. Summarize existing data and understanding and prepare for vital signs scoping workshops.
6. Host a Monitoring Workshop.
7. Develop a comprehensive long-term monitoring plan.
8. Complete vegetation mapping for the network.
9. Develop a network water quality monitoring plan.

II. Accomplishments (FY2002) and Scheduled Activities (FY2003)

A. Biological Inventories

Objective 1 – Compile and evaluate existing data for each park into NPS databases (all parks).

Task 1.1 – Compile and evaluate existing data on vertebrates and vascular plants and enter them in a consistent format into NPSpecies, NatureBib, Database Template and the Dataset Catalog.

- FY 2002 Accomplishments: (1) NPSpecies was populated with legacy data from all parks in the National Capital Network. As of August 2002, NPSpecies had a total of 22,013 records (excluding synonyms) for the region that were supported by 284 references, 3,730 vouchers, and 24,698 observations. In addition, parks in the National Capital Network recorded 5 Federal T&E species, 209 State T&E species, and 433

exotic species as currently present in the parks. (2) Data in NPSpecies is in the process of being verified to ensure data entry accuracy and completeness. (3) NatureBib was populated with legacy data from all parks, and as of August 2002, contained a total of 3,076 references for the region. (4) The database template (modified in 2001 for the bird inventory) is currently being populated with bird inventory data. The database template was also modified in 2002 for an Odonate inventory in 3 parks (CHOH, HAFE, ROCR), a reptile and amphibian inventory in 8 parks (CATO, CHOH, GWMP, HAFE, MANA, MONO, ROCR, WOTR) and is being modified for a small mammal survey in 8 parks (ANTI, CATO, CHOH, GWMP, HAFE, NACE, ROCR, WOTR).

- Scheduled FY 2003 Activities and Products: (1) Locate additional inventory related reference material including observations, vouchers, and literature. (2) The database template will be modified for a fish inventory in 6 parks (ANTI, CHOH, GWMP, HAFE, MONO, WOTR) and a vascular plant inventory in all 11 parks. (3) Continue to develop and implement a Data Management Plan that includes quality assurance methodology related to data entry and data verification in order to ensure quality data content in all I&M databases.

Task 1.2 – Compile existing GIS themes and modify them to be consistent with the GIS Theme Manager.

- FY 2002 Accomplishments: (1) The NPS GIS Theme Manager for ANTI, CATO, CHOH, HAFE, MANA, MONO, NACE, NACC, PRWI, ROCR and WOTR was populated with existing GIS themes by the regional GIS Specialist. (2) Data Manager attended data management training and an NBII metadata training course in SMMS to ensure proper metadata documentation that is FGDC compliant for all spatial and biological datasets. (3) Data Manager is working with the contracted botanist for vegetation mapping to differentially correct all GPS coordinates.
- Scheduled FY 2003 Activities and Products: (1) The NPS GIS Theme Manager will continue to be populated with existing GIS themes by the regional GIS Specialist. Each theme will be evaluated to determine if it is compatible with the Theme Manager and if FGDC-compliant metadata exist. (2) Data Manager will continue working with the contracted botanist to differentially correct all GPS coordinates and develop ArcView shapefiles and ArcInfo coverages for all vegetation mapping points.

Task 1.3 – Convert existing hard copy maps to digital GIS format.

- FY 2002 Accomplishments: (1) ArcGIS 8.2 software was purchased and installed for use by the data manager and other regional scientific staff.
- Scheduled FY2003 Activities and Products: (1) The Data Manager will evaluate existing hard copy maps for their utility and feasibility to be incorporated into GIS and write FGDC-compliant metadata for all GIS coverages and/or shapefiles that are developed.

Task 1.4 – Adapt Database Template to National Capital Network I & M projects.

- FY 2002 Accomplishments: (1) The Database Template was modified for the NPS Odonate and reptile and amphibian inventories and is being modified for the NPS small mammal inventory. (2) The Database Template was populated with data from ROCR, HAFE, and CHOH for the Odonate inventory, from CATO, CHOH, GWMP, HAFE, MANA, MONO, ROCR, WOTR for the reptile and amphibian inventory, and from ANTI, CATO, HAFE, MANA, PRWI, WOTR for the second year of the bird inventory.
- Scheduled FY2003 Activities and Products: (1) The Database Template will be populated with data from ANTI, CATO, CHOH, GWMP, HAFE, NACE, ROCR, and WOTR for the small mammal inventory when final modifications are complete. (2) The Database Template will be modified to integrate fish and vascular plant inventory data. In addition, the database will be integrated with ArcView, making use of the ArcView-to-Access extension from the Alaska Support Office. (3) All new data will be entered as it becomes available.

Objective 2 – Complete the documentation of 90% of vertebrate and vascular plant species in the parks through targeted field investigations.

Task 2.1 – Mammal surveys

Parks involved (small mammals): ANTI, CATO, CHOH, GWMP, HAFE, NACE, ROCR, and WOTR

Parks involved (medium/large mammals): ANTI, CATO, CHOH, GWMP, HAFE, ROCR, and WOTR

Parks involved (bats: *new project for FY03*): ANTI, CATO, CHOH, GWMP, HAFE, MANA, MONO, NACE, ROCR, and WOTR

- FY 2002 Accomplishments: (1) A 2001 annual report was received from Dr. McShea (Smithsonian Institution, small, medium, and large mammal inventory) and distributed to the parks. (2) Small mammal trapping occurred from April to October of 2002 at CHOH, GWMP, NACE, ROCR, and WOTR. (3) Infra-red trip cameras were set up at CHOH, GWMP, ROCR, and WOTR to document medium to large mammals during winter months. (4) Field sampling is complete at ANTI, CATO, CHOH, GWMP, HAFE, NACE, ROCR, and WOTR. (5) Weasel surveys were conducted at ANTI by the Biological Inventories Coordinator. (6) A request for proposals was sent out to conduct bat inventories in selected NCN parks.
- Scheduled FY 2003 Activities and Products: (1) An annual report is due in November 2002. (2) Infra-red trip cameras may be set up at NACE during FY03, but are not required by the cooperative agreement. (3) The Biological Inventories Coordinator will review the weasel sampling protocol and determine potential of future weasel surveys. (4) Review proposals and establish a cooperative agreement(s) to conduct bat inventories in selected NCN parks.

Task 2.2 – Distance sampling for deer density estimation

Parks involved: ANTI, CATO, CHOH, GWMP, MANA, MONO, NACE, PRWI, and ROCR

- FY 2002 Accomplishments: (1) Distance sampling was conducted at each park between October 2001 and May 2002.
- Scheduled FY 2003 Activities and Products: (1) The regional wildlife biologist, Biological Inventories Coordinator, and NCN natural resource managers will repeat distance sampling at each park between October 2002 and May 2003.

Task 2.3 – Inventory of breeding, wintering, and migrating bird species

Parks involved: ANTI, CATO, HAFE, MANA, PRWI, and WOTR

- FY 2002 Accomplishments: (1) Volunteer participants continued to inventory birds at each park. (2) Data was analyzed to determine if 90% documentation levels had been reached at each park. Inventories are complete at ANTI, CATO, MANA, and PRWI. (3) The project annual report was distributed to parks and WASO-NRID.
- Scheduled FY 2003 Activities and Products: (1) Volunteers will continue to inventory birds at HAFE and WOTR. Volunteers may continue to collect and submit data for other parks, but no formal inventories will be conducted. (2) Data will be analyzed to determine if 90% documentation levels have been reached at HAFE and WOTR. (3) A project annual report will be distributed to parks and WASO-NRID. (4) Protocols will be reviewed and revised if needed.

Task 2.4 – Inventory of reptiles and amphibians

Parks involved: CATO, CHOH, GWMP, HAFE, MANA, MONO, ROCR, and WOTR

- FY 2002 Accomplishments: (1) Dr. Pauley (University of Pittsburgh) and his associates visited the parks, selected study areas, and initiated field work. (2) Sampling was conducted between May and June. Dry weather conditions limited summer surveys.
- Scheduled FY 2003 Activities and Products: (1) An annual report is due in November 2002. (2) Sampling will continue in autumn (September-October), early spring (March-April), spring (May-June), and summer (July-August) of 2002-2003.

Task 2.5 – Inventory of fishes

Parks involved: ANTI, CHOH, GWMP, HAFE, MONO, and WOTR

- FY 2002 Accomplishments: (1) A request for proposals was sent out and a task order through the Chesapeake Watershed Cooperative Ecosystem Studies Unit was established with Dr. Richard Raesly (Principle Investigator) of Frostburg State University to conduct fish inventories in selected NCN parks (MANA was indicated as a selected park for an inventory of fishes within the FY01 Annual Administrative Report and Work Plan by error). (2) Investigators met with CHOH resource management staff. (3) Qualitative sampling to target rare species and unique habitats was conducted in July and August in CHOH. Funding allocation: NA
- Scheduled FY 2003 Activities and Products: (1) An annual report is due in October 2002. (2) Qualitative sampling to target rare and unique habitats will begin in selected parks. (3) Investigators will obtain GIS themes to aid in site selection for quantitative sampling in all parks. (4) Quantitative sampling will begin in selected parks.

Task 2.6 – Inventory of vascular plants

Parks involved: ANTI, CATO, CHOH, GWMP, HAFE, MANA, MONO, NACE, PRWI, ROCR, and WOTR

- FY 2002 Accomplishments: (1) A request for proposals was sent out and a task order through the Chesapeake Watershed Cooperative Ecosystem Studies Unit is being established with Dr. Ted Bradley (Principle Investigator) with George Mason University to conduct vascular plant inventories at PRWI. Funding allocation: NA
- Scheduled FY 2003 Activities and Products: (1) Investigators will obtain topographical maps, aerial photographs, GIS themes, select study sites, and initiate field work. (2) Sampling will occur from April through October. (3) Vascular plant inventories at remaining parks will be initiated through cooperative agreements or an NPS detail.

B. Vital Signs Monitoring

Objective 3 – Hire key personnel to implement the network monitoring program.

- FY2002 Accomplishments: (1) A second Biological Science Technician has been hired to support data mining and data management efforts.

Objective 4 – Establish Board of Directors and Science Advisory Committee.

Task 4.1 - Form a Board of Directors (BOD).

- FY2002 Accomplishments: (1) Board meetings were held in June and September 2002. The board formally approved changes to the Science Advisory Committee, four network goals to guide the Monitoring Plan, the draft Phase I report of the Monitoring Plan, and this document. The four network goals are: 1) Identify and monitor indicators of ecosystem health over the long-term using scientific protocols to detect

changes in the region's natural resources and landscapes in support of resource protection, 2) Identify and monitor resource threats and develop mitigation options to support ecosystem management, 3) Manage, maintain, and analyze regionally common data sets in accessible and usable forms in support of long-term resource preservation, protection, and education, and 4) Establish collaborative relationships among National Park Service divisions, educational institutions, partnering agencies, and organizations to gather and share information.

- Scheduled FY 2003 Activities and Products: (1) A BOD meeting will be held in Spring and Fall 2003 to review projects to date and evaluate activities planned for the remainder of FY 03.

Task 4.2 – Form a Science Advisory Committee (SAC).

- FY2002 Accomplishments: (1) The SAC met four times during Fall/Winter 01 and Spring 02. Day-long meetings with breakout sessions prepared the I & M Team for the Monitoring Workshop by developing conceptual models for the region's important resources, key threats, their ecological effects and potential vital signs. The SAC invited ad-hoc participants to the meetings to provide expertise not represented on the SAC. (See Staffing for complete list of participants).
- Scheduled FY 2003 Activities and Products: (1) The SAC will continue to meet during Winter and Spring '03 to finalize monitoring goals and objectives and prioritize vital signs.

Objective 5 – Summarize existing data and understanding and prepare for vital signs scoping workshops.

Task 5.1 - Review Resource Management Plans.

- FY2002 Accomplishments: (1) The Monitoring Coordinator and Biological Science Technician have reviewed Resource Management Plans for the 6 remaining parks (CHOH, GWMP, HAFE, MANA, PRWI, and ROCR), completing this project.

Task 5.2 - Develop park questionnaires.

- FY2002 Accomplishments: (1) The I & M Team developed park specific questionnaires based on the RMP reviews (Task 5.1) and met with superintendents and resource managers at the remaining six parks (CHOH, GWMP, HAFE, MANA, PRWI, and ROCR) to assess monitoring priorities, summarize key park resources, and evaluate current monitoring programs. Upon completion of this task the I & M Team produced a summary of all park interviews in a document entitled "Park Summaries". (2) A spreadsheet ("Summary Table") was developed to allow comparisons of key resources and management issues among all parks. The documents were posted to the NCN I & M Webpage (<http://www.nature.nps.gov/im/units/nw12/index.html>).

Task 5.3 - Summarize regional monitoring programs.

- FY2002 Accomplishments: (1) The Monitoring Coordinator and Biological Science Technician have completed a summary document ("Current Monitoring in NCR") of current and historical monitoring programs in the region including threatened and endangered species, water quality, air quality, physical processes, and other resources. The document summarized monitoring conducted by neighboring agencies, partners, and parks throughout the region. The document was posted to the NCN I & M Webpage (<http://www.nature.nps.gov/im/units/nw12/index.html>).

Task 5.4 – Develop supplemental information for the SAC and Monitoring Workshop.

- FY2002 Accomplishments: (1) The Monitoring Coordinator and Biological Science Technician have summarized data regarding the region's species of concern and significant vegetation communities ("NCR Communities"). The document was posted to the NCN I & M Webpage (<http://www.nature.nps.gov/im/units/nw12/index.html>).

Task 5.5 – Develop a National Capital Network web page to share vital information about the I&M Program.

- FY2002 Accomplishments: (1) The Biological Science Technician developed a website for the I & M program with detailed project descriptions for Monitoring, Staff, Planning Process, the Board of Directors, the Science Advisory Committee, and Workgroups. The site was used to share information with SAC and Monitoring Workshop participants. All documents and reports are posted to the site. See <http://www.nature.nps.gov/im/units/nw12/index.html> for details.
- Scheduled FY 2003 Activities and Products: (1) Project descriptions for Biological Inventories and other new products will be posted as they are completed.

Objective 6 – Host a Monitoring Workshop.

- FY2002 Accomplishments: (1) The NCN I & M Team hosted a 3-day Monitoring Workshop at the National Conservation Training Center, Shepherdstown, WV in July. Over 100 participants attended, representing approximately 30 partnering agencies and NPS divisions. The I & M Team used the workshop to develop partnerships and receive technical input into the planning process through a series of breakout sessions. Participants identified the region's most significant resources, their threats, ecological effects, and potential vital signs to monitor ecosystem health. Priority monitoring goals and objectives were developed. The results of the workshop are now being integrated into the first two chapters of the network's monitoring plan.
- Scheduled FY 2003 Activities and Products: (1) Complete a Monitoring Workshop Report to summarize the activities and results of the Monitoring Workshop.

Objective 7 – Develop a Comprehensive Long-Term Monitoring Plan.

Task 7.1 – Complete draft of Monitoring Plan Phase I Report.

- FY2002 Accomplishments: (1) The I & M Team completed writing the Phase I report including draft chapters 2 and 3. Chapter 2 includes a summary of key natural resources in the region and outlines the planning process followed to develop a monitoring plan. Chapter 3 summarizes the conceptual models developed for the region's important resources by the SAC and through the Monitoring Workshop.
- Scheduled FY 2003 Activities and Products: (1) Complete Phase I report (due 1 October 2002).

Task 7.2 – Complete Draft of Monitoring Plan Phase II Report.

- Scheduled FY 2003 Activities and Products: (1) Complete Phase II report (due 1 April 2003).

Task 7.3 – Initiate Draft of Monitoring Plan Phase III Report.

- Scheduled FY 2003 Activities and Products: (1) Initiate work on Phase III Monitoring Plan report (due 1 April 2004). (2) Develop monitoring protocols through collaboration with USGS or the CW-CESU.

Objective 8 – Complete vegetation mapping for the network. Vegetation maps are a critical data layer needed for designing monitoring programs. Accordingly, we are contributing to a regionwide vegetation mapping project.

Parks involved: ANTI, CATO, CHOH, GWMP, HAFE, MANA, MONO, NACE, PRWI, ROCR, and WOTR

Task 8.1 – Conduct aerial photography of the region.

- FY 2002 Accomplishments: (1) Aerial photography was scheduled to occur in October 2002 during peak leaf color. Due to the past 5 years of drought in the area, photography was postponed because of trees dropping leaves or turning brown prematurely. The vendor (Kucera International) has agreed to reschedule for 2003. Aerial photography costs may increase because of the delay.
- Scheduled FY 2003 Activities and Products: (1) Aerial photography will be flown in 2003 during one of the following time periods: leaf-off color IR in early spring, leaf-on IR during summer, or leaf-on during the fall color change. The photointerpreter chosen for the project (see task 8.3) will determine during which time period the aerial photography is taken.

Task 8.2 –Develop US National Vegetation Classification for NCN parks.

- FY 2002 Accomplishments: (1) A proposal to classify vegetation and map NCN parks involving NatureServe (Lesley Sneddon), Virginia Natural Heritage, and the NPS was developed and submitted to the Vegetation Mapping Program. The proposal included a Rapid Assessment method, a plotless technique to incorporate existing classification and reduce the quantity of data needed in initial field assessments. The proposal also included a cost comparison of the Rapid Assessment technique to the ‘standard’ method using plots. (2) An umbrella cooperative agreement was established with NatureServe to conduct this work. A task agreement was prepared and signed to establish a vegetation classification for NCN. Funding allocation: NA. Vegetation Mapping Program, NA NCR funds. (3) Chris Lea, Ecologist from ASIS, started a detail with NCR to conduct the Rapid Assessment in NCN parks. Chris conducted field work from May to October, collecting data from approximately 2,000 sampling points. Funding allocation: NA. (4) A temporary biological science technician position was advertised to enter data from Chris Lea’s field work. Funding allocation: NA.
- Scheduled FY 2003 Activities and Products: (1) Lesley Sneddon, NatureServe, Chris Lea, and the Virginia Natural Heritage programs will construct classification of NCN communities and add them to the USNVCS. (2) The temporary biotech will enter all of Chris Lea’s field data.

Task 8.3 – Conduct vegetation mapping of the NCN parks through the photo interpretation of aerial photography (New project for FY 2003).

- FY 2002 Accomplishments: (1) A task agreement was established under the umbrella cooperative agreement with NatureServe to collect and analyze vegetation plots to refine the classification at each park, create digital orthophoto mosaics, and perform photo interpretation of vegetation classification to the association level for NCN, including mapping of the half-mile buffer around each park to the formation level. Funding allocation: NA monitoring, NA inventories, NA regional funds, NA park base.
- Scheduled FY 2003 Activities and Products: (1) NatureServe will develop a work plan by December 2003. (2) NatureServe will develop and run a Request for Proposals for the photo interpretation and digital orthophoto mosaics in November 2003. NPS will be involved in the selection of the subcontractor.

Objective 9 – Develop a network water quality monitoring plan. Phase I of the Water Quality Monitoring Plan was completed. Our network hydrologist, Marian Norris, assisted in the planning, design and implementation of the water quality monitoring plan based upon elements from the Federal Clean Water Act and the state’s Water Quality Management Plans, in coordination with the I & M Program Guidelines.

Task 9.1 - Develop Park Questionnaires.

- FY 2002 accomplishments: (1) A questionnaire was submitted to each park's resource managers to determine the important issues to be addressed by the water quality monitoring plan. (2) The park's staff was interviewed based on initial responses to incorporate views outside of the natural resource staff concerning issues that they felt should be identified and prioritized for short and long-term water quality monitoring needs for parks in the NCN.

Task 9.2 - Summarize regional monitoring programs.

- FY 2002 accomplishments: (1) Efforts to determine water resource inventory data gaps for surface waters within the National Capital Network parks brought together a limited amount of information from the park's repositories. Available information, particularly from the WRD Horizon reports, was summarized and documented. (2) Examples of monitoring templates and strategies used by other networks, prototype parks, or regulatory agencies were evaluated to determine their adequacy for the NCN. Information obtained from around the United States pointed us toward the Maryland Biological Stream Survey (MBSS) program as being one of the most comprehensive in current use. Our work researching the MBSS program and meetings with their directors have led us to adopt their general program methods.
- Scheduled FY 2003 Activities and Products: (1) Planning is underway to gather additional information.

Task 9.3 – Participate in meetings with the Water Resources Working Group.

- FY 2002 accomplishments: (1) Participated in four Science Advisory Committee meetings to develop water resource components, stressors, sources of stress, and ecological effects. (2) Participated in the three-day Monitoring Workshop hosted by the I&M program that included participation by numerous federal, state and local government agencies and university staff.
- Scheduled FY 2003 Activities and Products: (1) Schedule Water Resource Workgroup meetings to prioritize the final selection of vital signs that will be used in the monitoring plan.

Task 9.4 – Develop supplemental information for Monitoring Plan development.

- Scheduled FY 2003 Activities and Products: (1) Water resource inventory data gaps include a need for identifying surface waters within the NCN parks, identifying waters that are oligotrophic, and are sensitive to acid deposition. Sampling sediments to determine which streams contain heavy metal or other chemical contamination will be conducted on a limited basis. (2) Develop a network-wide GIS layer that incorporates all the perennial streams in each network park. The Regional GIS Coordinator has agreed to support the efforts of the Water Quality Monitoring Plan by mapping the surface waters in the National Capital Network (NCN) parks. (3) Compile information on state-identified "impaired" (303d-listed) waters within network parks. All 303d listed streams in the NCN watersheds will be identified and noted. 303d data will be obtained from the current EPA list. This will include a review of the Total Maximum Daily Loads (TMDL's) set by the state. (4) Compile information on state-identified outstanding waters, or special protection waters. Most of the surface waters within the NCN will likely be impaired. There may be a few streams in remote areas of the parks that have not been impaired. There will have to be more water sampling analyses to identify potential streams that may be considered outstanding waters in the state.

Task 9.5 - Draft a network water quality monitoring plan.

- Scheduled FY 2003 Activities and Products: (1) Complete Chapter III Conceptual Models and have it peer reviewed. (2) Adapt MBSS monitoring protocols and the QA/QC plan according to servicewide standards. (3) Determine data management needs and protocols following servicewide water quality monitoring standards (e.g. EPA-STORET legacy system).

III. Staffing

Inventory and Monitoring Staff (CUE)

Ellen Gray, National Capital Region I&M Coordinator
 Marcus Koenen, Monitoring Coordinator
 Christina Wright, Data Manager
 John Sinclair, Biological Inventories Coordinator (term appointment)
 Mikaila Milton, I&M Biological Science Technician (term appointment)
 Sybil Hood, Data Management Biological Science Technician (term appointment)
 Tim Schmalz, Vegetation Mapping Biological Science Technician (temporary appointment)
 Doug Curtis, Hydrologist
 Marian Norris, Hydrologist (term appointment)

Board of Directors

John Howard - Chair (Superintendent - ANTI)
 Don Campbell (Superintendent - HAFE)
 Betsy Chittenden (Resource Manager – WOTR)
 Adrienne Coleman (Superintendent - ROCR)
 Karen Cucurullo (Superintendent - MANA)
 Ellen Gray (I & M Coordinator - NRS)
 Robert Hickman (Superintendent - PRWI)
 Dianne Ingram (Resource Manager - CHOH)
 Marcus Koenen (Monitoring Coordinator - NRS)
 Stan Lock (WHHO)
 Dottie Marshall (Assistant Superintendent - GWMP)
 Jim Sherald (Chief - NRS)
 Karen Taylor-Goodrich (Superintendent - NACE)
 Susan Trail (Superintendent - MONO)
 Jim Voigt (Resource Manager - CATO)

Science Advisory Committee

Ellen Gray, PhD - Chair (I & M Coordinator)
 Scott Bates (Wildlife Biologist - NRS)
 Pat Bradley, PhD (EPA/Mid-Atlantic Integrated Assessment)
 Betsy Chittenden (Resource Manager – WOTR)
 Doug Curtis (Hydrologist - NRS)
 Bryan Gorsira (Resource Manager - MANA)
 Dianne Ingram (Resource Manager - CHOH)
 Lisa Jameson (Exotic Plant Management Team Coordinator – NRS)
 Melissa Kangas (Resource Manager – GWMP)
 Marcus Koenen (Monitoring Coordinator – NRS)
 Tom Kopcyk (Resource Manager – MONO)
 Becky Lancosky (Resource Manager - CATO)
 Jennifer Lee (Resource Manager – PRWI)
 Mikaila Milton (Biotech – NRS)
 Marian Norris (Hydrologist – NRS)
 Dale Nisbet (Resource Manager – HAFE)
 Gopaul Noojibail (Resource Manager – NACC)
 Alan F. O'Connell, PhD (USGS – Patuxent Wildlife Research Cntr.)

Diane Pavek, PhD (Botanist – NRS)
 Sue Salmons (Resource Manager – ROCR)
 Kent Schwarzkopf (Resource Manager – APPA)
 John Sinclair (Inventories Coordinator – NRS)
 Jim Sherald, PhD (Chief, NRS)
 Craig Snyder, PhD (Ecologist - Leetown Science Center - USGS)
 Jil Swearingen (Entomologist/IPM Coordinator - NRS)
 Brent Steury (Resource Manager – NACE)
 Jim Voigt (Resource Manager – CATO)
 Ed Wenschhof (Resource Manager – ANTI)
 Christina Wright, PhD (Data Manager – NRS)

Science Advisory Committee – Ad Hoc Participants

Edd Barrows, PhD (Georgetown University)
 Cheryl Bright, PhD (Smithsonian Institution - National Museum of Natural History)
 Wendy Cass (Shenandoah National Park)
 Ray Chaput, PhD (Independent Researcher)
 Pete Chirico, PhD (USGS)
 Jim Comiskey, PhD (Smithsonian Institution - National Museum of Natural History)
 Gary Hevel, PhD (Smithsonian Institution - National Museum of Natural History)
 Bob Higgins (NPS - Geologic Resources Division)
 Paul Kazyak (MD DNR)
 Dorothy Keough (DOD – Fort Belvoir)
 David Krask (DC – COG)
 James Lawry, PhD (George Mason University)
 Doug Samson, PhD (The Nature Conservancy – DC/Maryland Chapter)
 Marie Sauter (NPS - C & O Canal National Historical Park)
 Steve Seagle, PhD (Center for Environmental Science, Appalachian Laboratory)
 Chip Scott, PhD (USDA Forest Service)
 Scott Southworth, PhD (USGS)
 George Taylor, PhD (GMU - Chesapeake Watershed – CESU)
 Julie Thomas (National Park Service)

Contractors/Cooperators

Dr. Ted Bradley, George Mason University – Vascular Plant Inventory
 Dr. William McShea, Smithsonian Institution – Mammal Inventory
 Dr. George Middendorf, Howard University – Amphibian/Reptile Inventory
 Dr. Joe Mitchell, University of Richmond – Amphibian/Reptile Inventory
 Dr. Thomas Pauley, University of Pittsburgh, Bradford, PA – Amphibian/Reptile Inventory
 Dr. Richard Raesly, Frostburg State University – Fish Inventory
 Dr. Brian Underwood, USGS – Deer Population Study
 Dr. Mark B. Watson, University of Pittsburgh, Bradford, PA – Amphibian/Reptile Inventory

IV. Public Interest Highlights

Monitoring Workshop: The network has just passed its first major milestone by hosting a 3-day Monitoring Workshop designed to develop and enhance existing partnerships in order to preserve the region's most

significant natural resources. The workshop sparked a huge interest and was attended by over 100 participants representing over 30 different partnering agencies, including universities, state and other federal agencies, non-government agencies, and individuals, as well as several divisions within the Park Service.

The workshop was successful in receiving technical input into the planning process through a series of breakout sessions. Participants prioritized the region's most significant resources, their threats, ecological effects, and potential vital signs to monitor ecosystem health. The results of the workshop can now be integrated into the first two chapters of the network's monitoring plan. Technical committees will continue to meet to build on the momentum generated by the workshop. Continued collaboration will likely allow the network to leverage additional resources into monitoring the region's complex ecosystems.

V. Reports, Publications and Presentations

Beidleman, C. and M. Koenen. 2002. ParkFlight Migratory Bird Program. Poster at Third International Partners in Flight Conference. Monterrey California. 20-24 March.

Gray, E. S. 2002. Status of the Inventory and Monitoring program of the National Capital Region. Presentation to the National Park Service Inventory and Monitoring Advisory Committee, Miami, Florida.

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VI. Status of Park Vital Signs Monitoring

National Capital Network 2002	Air Quality	Water Quality	Water Quantity	Geologic Resources	Plants	Animals	Landscape Characteristics
Planning and Design							
# parks monitoring w/ NRC funding	11	11	11	11	11	11	11
# parks monitoring w/ other funding	1	3	1	1	4	11	0
Protocols Implemented							
# parks monitoring w/ NRC funding	0	0	0	0	0	0	0
# parks monitoring w/ other funding	1	3	1	1	4	11	0
Analysis/Synthesis Available							
# parks monitoring w/ NRC funding	0	0	0	0	0	0	0
# parks monitoring w/ other funding	1	3	1	1	4	11	0

VII. Budget

Budget Narrative: In FY 2002, the network received \$NA from the NPS Servicewide I&M program for biological inventories and \$NA for the network's vital signs monitoring program. Inventory funds were allocated towards the fish and vascular plant inventory task agreements with the Chesapeake Watershed Cooperative Ecosystems Studies Unit (CW-CESU), salary, benefits, travel and training for the biological inventories coordinator, and vegetation mapping for the network. Monitoring funds were spent on hiring a biological science technician to assist with data mining and I&M database maintenance, training new personnel, contributing to the vegetation mapping of the network parks, salary and benefits for the Monitoring Coordinator, Data Manager, and Biological Science Technician, and a task agreement with the CW-CESU to conduct vital signs protocol development.

In FY 2002, the network's WRD funds (\$NA) were used for salary and benefits for the term hydrologist writing the Water Quality Monitoring Plan, training to implement the plan, travel to I&M and WRD meetings and other pertinent conferences and workshops, office equipment and supplies, and field sampling equipment.

In FY 2003, the network will receive \$NA from the NPS Servicewide I&M program for biological inventories and \$NA for the network's monitoring program. Inventory funds will be spent on vascular plant and bat inventories. Monitoring funds will be allocated towards developing monitoring protocols, supporting development of the network's vegetation map, conducting supplemental inventories of invertebrates or other groups to provide needed information to develop the monitoring plan, and compiling and evaluating existing park data into NPS databases. The network's WRD funds will be used for salary and benefits for the term hydrologist writing the Water Quality Monitoring Plan, training to implement the plan, travel to national I&M and WRD meetings and other pertinent conferences and workshops, office equipment and supplies, sampling equipment and water analyses.

